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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Temperature – Electromotive force (EMF) tables for pure-element thermocouple combinations

Tableaux température – Force électromotrice (F.É.M.) pour les combinaisons de couples thermoélectriques à éléments purs

IEC 62460:2008

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FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62460 has been prepared by subcommittee 65B: Devices and process analysis, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this standard is based on the following documents:

FDIS	Report on voting
65B/665/FDIS	65B/684/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

TEMPERATURE – ELECTROMOTIVE FORCE (EMF) TABLES FOR PURE-ELEMENT THERMOCOUPLE COMBINATIONS

1 Scope

This International Standard specifies the equations and reference tables relating temperature to EMF (electro-motive force) for Gold versus Platinum and Platinum versus Palladium thermocouples. For information and convenience of use it also provides the approximate equations for temperature as functions of EMF.

The tables and equations in this standard are intended for use with thermocouples made from elements of purity not less than 99.999 % for Platinum and Gold and of 99.99 % for Palladium, by weight.

Tolerances on initial values of EMF versus temperature have not been established for the thermocouples in this standard. Where required, these tolerances should be agreed between the wire manufacturer and the user.

Temperatures in this standard are based on the International Temperature Scale of 1990 (ITS-90). They are expressed in degrees Celsius, symbol t_{90}. Values of EMF, symbol E/μV, are given in microvolts.

This standard does not cover extension or compensating wires for use with the pure-element thermocouples. The questions of their use shall be agreed between the manufacturer and the user.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60584-1, *Thermocouples – Reference tables*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60584-1 apply, as well as the following.

3.1
thermocouple types
the following thermocouple wire types are covered by this standard:

- Gold versus Platinum (Au/Pt or Gold/Platinum)
- Platinum versus Palladium (Pt/Pd or Platinum/Palladium)

Following international convention, as in IEC 60584-1, when identifying thermocouples the positive element/wire is given first.

3.2 thermoelectric values at the ITS-90 fixed points

values are given for the defining triple points (TP), melting points (MP) and freezing points (FP) in the temperature range of the corresponding tables. The Seebeck coefficient *S* is the first derivative of the EMF with respect to temperature.

4 Information on tables and equations

The following tables are included in this standard:

- Gold versus Platinum: EMF at intervals of 1 °C
- Gold versus Platinum: temperatures at intervals of 10μV
- Gold versus Platinum: thermoelectric values at the fixed points of the ITS-90
- Platinum versus Palladium: EMF at intervals of 1 °C
- Platinum versus Palladium: temperatures at intervals of 10μV
- Platinum versus Palladium: thermoelectric values at the fixed points of the ITS-90

For the tables in this document, the reference temperature is 0 °C.

The definitive equations of EMF, E/μV, as functions of temperature, t_{90}/°C, which are used to generate the tables, are given in Annex A for Gold/Platinum thermocouples and Annex B for Platinum/Palladium thermocouples.

For information and convenience in use, approximate equations are also given, expressing t_{90}/°C as functions of E/μV for the respective thermocouples within the stated error limits.

5 Tables for Gold versus Platinum thermocouples

5.1 Gold versus Platinum: EMF at intervals of 1 °C

t_{90} / °C	0	1	2	3	4	5	6	7	8	9	t_{90} / °C
						E/μV					
0	0.0	6.1	12.1	18.3	24.5	30.7	36.9	43.2	49.5	55.9	0
10	62.3	68.7	75.2	81.7	88.2	94.8	101.4	108.1	114.8	121.5	10
20	128.3	135.1	141.9	148.8	155.7	162.7	169.7	176.7	183.7	190.8	20
30	197.9	205.1	212.3	219.5	226.8	234.1	241.4	248.8	256.2	263.6	30
40	271.1	278.6	286.1	293.7	301.3	308.9	316.6	324.3	332.1	339.8	40
50	347.6	355.5	363.3	371.2	379.2	387.1	395.1	403.2	411.2	419.3	50
60	427.5	435.6	443.8	452.1	460.3	468.6	476.9	485.3	493.6	502.1	60
70	510.5	519.0	527.5	536.0	544.6	553.2	561.8	570.5	579.2	587.9	70
80	596.6	605.4	614.2	623.1	632.0	640.9	649.8	658.7	667.7	676.8	80
90	685.8	694.9	704.0	713.1	722.3	731.5	740.7	750.0	759.2	768.6	90
100	777.9	787.3	796.7	806.1	815.5	825.0	834.5	844.1	853.6	863.2	100
110	872.8	882.5	892.2	901.9	911.6	921.4	931.2	941.0	950.8	960.7	110
120	970.6	980.5	990.5	1000.4	1010.4	1020.5	1030.5	1040.6	1050.7	1060.9	120
130	1071.0	1081.2	1091.4	1101.7	1112.0	1122.3	1132.6	1142.9	1153.3	1163.7	130
140	1174.1	1184.6	1195.1	1205.6	1216.1	1226.7	1237.2	1247.8	1258.5	1269.1	140
150	1279.8	1290.5	1301.3	1312.0	1322.8	1333.6	1344.4	1355.3	1366.2	1377.1	150
160	1388.0	1399.0	1410.0	1421.0	1432.0	1443.1	1454.1	1465.3	1476.4	1487.5	160
170	1498.7	1509.9	1521.1	1532.4	1543.7	1555.0	1566.3	1577.6	1589.0	1600.4	170
180	1611.8	1623.3	1634.7	1646.2	1657.7	1669.3	1680.8	1692.4	1704.0	1715.6	180
190	1727.3	1739.0	1750.7	1762.4	1774.1	1785.9	1797.7	1809.5	1821.3	1833.2	190
200	1845.1	1857.0	1868.9	1880.9	1892.8	1904.8	1916.8	1928.9	1941.0	1953.0	200
210	1965.1	1977.3	1989.4	2001.6	2013.8	2026.0	2038.3	2050.5	2062.8	2075.1	210
220	2087.4	2099.8	2112.2	2124.6	2137.0	2149.4	2161.9	2174.4	2186.9	2199.4	220
230	2211.9	2224.5	2237.1	2249.7	2262.3	2275.0	2287.7	2300.4	2313.1	2325.8	230
240	2338.6	2351.4	2364.2	2377.0	2389.8	2402.7	2415.6	2428.5	2441.4	2454.4	240
250	2467.3	2480.3	2493.3	2506.4	2519.4	2532.5	2545.6	2558.7	2571.9	2585.0	250
260	2598.2	2611.4	2624.6	2637.8	2651.1	2664.4	2677.7	2691.0	2704.3	2717.7	260
270	2731.1	2744.5	2757.9	2771.3	2784.8	2798.3	2811.8	2825.3	2838.9	2852.4	270
280	2866.0	2879.6	2893.2	2906.9	2920.5	2934.2	2947.9	2961.6	2975.4	2989.1	280
290	3002.9	3016.7	3030.5	3044.4	3058.2	3072.1	3086.0	3099.9	3113.8	3127.8	290
300	3141.8	3155.8	3169.8	3183.8	3197.9	3211.9	3226.0	3240.1	3254.3	3268.4	300
310	3282.6	3296.8	3311.0	3325.2	3339.4	3353.7	3368.0	3382.3	3396.6	3410.9	310
320	3425.3	3439.7	3454.1	3468.5	3482.9	3497.4	3511.8	3526.3	3540.8	3555.4	320
330	3569.9	3584.5	3599.1	3613.7	3628.3	3642.9	3657.6	3672.2	3686.9	3701.7	330
340	3716.4	3731.1	3745.9	3760.7	3775.5	3790.3	3805.2	3820.0	3834.9	3849.8	340
350	3864.7	3879.6	3894.6	3909.6	3924.6	3939.6	3954.6	3969.6	3984.7	3999.8	350
360	4014.9	4030.0	4045.1	4060.3	4075.4	4090.6	4105.8	4121.0	4136.3	4151.5	360
370	4166.8	4182.1	4197.4	4212.8	4228.1	4243.5	4258.9	4274.3	4289.7	4305.1	370
380	4320.6	4336.1	4351.6	4367.1	4382.6	4398.1	4413.7	4429.3	4444.9	4460.5	380
390	4476.1	4491.8	4507.4	4523.1	4538.8	4554.6	4570.3	4586.1	4601.8	4617.6	390

Gold versus Platinum
EMF at intervals of 1 °C *(continued)*

t_{90} / °C	0	1	2	3	4	5	6	7	8	9	t_{90} / °C
						E/μV					
400	4633.4	4649.3	4665.1	4681.0	4696.8	4712.7	4728.6	4744.6	4760.5	4776.5	400
410	4792.5	4808.5	4824.5	4840.5	4856.6	4872.7	4888.7	4904.9	4921.0	4937.1	410
420	4953.3	4969.4	4985.6	5001.8	5018.1	5034.3	5050.6	5066.9	5083.1	5099.5	420
430	5115.8	5132.1	5148.5	5164.9	5181.3	5197.7	5214.1	5230.6	5247.0	5263.5	430
440	5280.0	5296.5	5313.1	5329.6	5346.2	5362.8	5379.4	5396.0	5412.6	5429.3	440
450	5446.0	5462.6	5479.4	5496.1	5512.8	5529.6	5546.3	5563.1	5579.9	5596.8	450
460	5613.6	5630.5	5647.3	5664.2	5681.1	5698.0	5715.0	5731.9	5748.9	5765.9	460
470	5782.9	5799.9	5817.0	5834.0	5851.1	5868.2	5885.3	5902.4	5919.6	5936.8	470
480	5953.9	5971.1	5988.3	6005.6	6022.8	6040.1	6057.3	6074.6	6091.9	6109.3	480
490	6126.6	6144.0	6161.3	6178.7	6196.1	6213.6	6231.0	6248.5	6265.9	6283.4	490
500	6301.0	6318.5	6336.0	6353.6	6371.2	6388.7	6406.4	6424.0	6441.6	6459.3	500
510	6477.0	6494.7	6512.4	6530.1	6547.8	6565.6	6583.4	6601.1	6619.0	6636.8	510
520	6654.6	6672.5	6690.4	6708.2	6726.2	6744.1	6762.0	6780.0	6797.9	6815.9	520
530	6833.9	6852.0	6870.0	6888.1	6906.1	6924.2	6942.3	6960.4	6978.6	6996.7	530
540	7014.9	7033.1	7051.3	7069.5	7087.7	7106.0	7124.3	7142.6	7160.9	7179.2	540
550	7197.5	7215.9	7234.2	7252.6	7271.0	7289.4	7307.9	7326.3	7344.8	7363.3	550
560	7381.8	7400.3	7418.8	7437.4	7455.9	7474.5	7493.1	7511.7	7530.3	7549.0	560
570	7567.6	7586.3	7605.0	7623.7	7642.5	7661.2	7680.0	7698.7	7717.5	7736.3	570
580	7755.2	7774.0	7792.9	7811.7	7830.6	7849.5	7868.5	7887.4	7906.4	7925.3	580
590	7944.3	7963.3	7982.3	8001.4	8020.4	8039.5	8058.6	8077.7	8096.8	8115.9	590
600	8135.1	8154.3	8173.4	8192.6	8211.9	8231.1	8250.3	8269.6	8288.9	8308.2	600
610	8327.5	8346.8	8366.2	8385.5	8404.9	8424.3	8443.7	8463.2	8482.6	8502.1	610
620	8521.5	8541.0	8560.5	8580.1	8599.6	8619.2	8638.7	8658.3	8677.9	8697.6	620
630	8717.2	8736.9	8756.5	8776.2	8795.9	8815.6	8835.4	8855.1	8874.9	8894.7	630
640	8914.5	8934.3	8954.1	8974.0	8993.9	9013.7	9033.6	9053.6	9073.5	9093.4	640
650	9113.4	9133.4	9153.4	9173.4	9193.4	9213.5	9233.5	9253.6	9273.7	9293.8	650
660	9313.9	9334.1	9354.2	9374.4	9394.6	9414.8	9435.0	9455.3	9475.5	9495.8	660
670	9516.1	9536.4	9556.7	9577.0	9597.4	9617.8	9638.2	9658.6	9679.0	9699.4	670
680	9719.9	9740.3	9760.8	9781.3	9801.8	9822.3	9842.9	9863.5	9884.0	9904.6	680
690	9925.2	9945.9	9966.5	9987.2	10007.9	10028.5	10049.3	10070.0	10090.7	10111.5	690
700	10132.2	10153.0	10173.8	10194.7	10215.5	10236.4	10257.2	10278.1	10299.0	10319.9	700
710	10340.9	10361.8	10382.8	10403.8	10424.8	10445.8	10466.8	10487.9	10508.9	10530.0	710
720	10551.1	10572.2	10593.3	10614.5	10635.6	10656.8	10678.0	10699.2	10720.4	10741.7	720
730	10762.9	10784.2	10805.5	10826.8	10848.1	10869.5	10890.8	10912.2	10933.6	10955.0	730
740	10976.4	10997.8	11019.3	11040.8	11062.2	11083.7	11105.3	11126.8	11148.3	11169.9	740
750	11191.5	11213.1	11234.7	11256.3	11277.9	11299.6	11321.3	11343.0	11364.7	11386.4	750
760	11408.1	11429.9	11451.7	11473.5	11495.3	11517.1	11538.9	11560.8	11582.6	11604.5	760
770	11626.4	11648.3	11670.3	11692.2	11714.2	11736.2	11758.2	11780.2	11802.2	11824.3	770
780	11846.3	11868.4	11890.5	11912.6	11934.7	11956.9	11979.0	12001.2	12023.4	12045.6	780
790	12067.8	12090.0	12112.3	12134.6	12156.8	12179.1	12201.5	12223.8	12246.1	12268.5	790

Gold versus Platinum
EMF at intervals of 1 °C *(continued)*

t_{90} / °C	0	1	2	3	4	5	6	7	8	9	t_{90} / °C
						E/µV					
800	12290.9	12313.3	12335.7	12358.1	12380.6	12403.0	12425.5	12448.0	12470.5	12493.0	800
810	12515.6	12538.1	12560.7	12583.3	12605.9	12628.5	12651.2	12673.8	12696.5	12719.2	810
820	12741.9	12764.6	12787.3	12810.1	12832.8	12855.6	12878.4	12901.2	12924.0	12946.9	820
830	12969.7	12992.6	13015.5	13038.4	13061.3	13084.3	13107.2	13130.2	13153.2	13176.2	830
840	13199.2	13222.2	13245.3	13268.4	13291.4	13314.5	13337.7	13360.8	13383.9	13407.1	840
850	13430.3	13453.5	13476.7	13499.9	13523.1	13546.4	13569.7	13593.0	13616.3	13639.6	850
860	13662.9	13686.3	13709.6	13733.0	13756.4	13779.8	13803.3	13826.7	13850.2	13873.6	860
870	13897.1	13920.7	13944.2	13967.7	13991.3	14014.9	14038.4	14062.0	14085.7	14109.3	870
880	14133.0	14156.6	14180.3	14204.0	14227.7	14251.5	14275.2	14299.0	14322.7	14346.5	880
890	14370.3	14394.2	14418.0	14441.9	14465.7	14489.6	14513.5	14537.5	14561.4	14585.3	890
900	14609.3	14633.3	14657.3	14681.3	14705.3	14729.4	14753.4	14777.5	14801.6	14825.7	900
910	14849.9	14874.0	14898.2	14922.3	14946.5	14970.7	14994.9	15019.2	15043.4	15067.7	910
920	15092.0	15116.3	15140.6	15164.9	15189.3	15213.6	15238.0	15262.4	15286.8	15311.2	920
930	15335.7	15360.1	15384.6	15409.1	15433.6	15458.1	15482.6	15507.2	15531.7	15556.3	930
940	15580.9	15605.5	15630.1	15654.8	15679.4	15704.1	15728.8	15753.5	15778.2	15803.0	940
950	15827.7	15852.5	15877.3	15902.1	15926.9	15951.7	15976.6	16001.4	16026.3	16051.2	950
960	16076.1	16101.0	16126.0	16150.9	16175.9	16200.9	16225.9	16250.9	16276.0	16301.0	960
970	16326.1	16351.2	16376.2	16401.4	16426.5	16451.6	16476.8	16502.0	16527.2	16552.4	970
980	16577.6	16602.8	16628.1	16653.3	16678.6	16703.9	16729.2	16754.6	16779.9	16805.3	980
990	16830.7	16856.1	16881.5	16906.9	16932.3	16957.8	16983.3	17008.8	17034.3	17059.8	990
1000	17085.3										1000

5.2 Gold versus Platinum: Temperature at intervals of 10 µV

E/µV	0	10	20	30	40	50	60	70	80	90	*E*/µV
						t_{90} / °C					
0	0.00	1.65	3.28	4.89	6.49	8.07	9.64	11.20	12.74	14.27	0
100	15.78	17.28	18.77	20.25	21.72	23.17	24.62	26.05	27.47	28.89	100
200	30.29	31.68	33.07	34.44	35.81	37.17	38.52	39.86	41.19	42.51	200
300	43.83	45.14	46.44	47.74	49.02	50.30	51.58	52.84	54.10	55.36	300
400	56.60	57.84	59.08	60.31	61.53	62.75	63.96	65.17	66.37	67.56	400
500	68.75	69.94	71.12	72.29	73.46	74.63	75.79	76.94	78.09	79.24	500
600	80.38	81.52	82.65	83.78	84.90	86.02	87.14	88.25	89.36	90.46	600
700	91.56	92.66	93.75	94.84	95.92	97.01	98.08	99.16	100.23	101.29	700
800	102.36	103.42	104.47	105.53	106.58	107.62	108.67	109.71	110.74	111.78	800
900	112.81	113.84	114.86	115.88	116.90	117.92	118.93	119.94	120.95	121.95	900
1000	122.96	123.96	124.95	125.95	126.94	127.93	128.91	129.90	130.88	131.86	1000
1100	132.83	133.81	134.78	135.75	136.72	137.68	138.64	139.60	140.56	141.52	1100
1200	142.47	143.42	144.37	145.31	146.26	147.20	148.14	149.08	150.02	150.95	1200
1300	151.88	152.81	153.74	154.67	155.59	156.51	157.43	158.35	159.27	160.18	1300
1400	161.09	162.00	162.91	163.82	164.72	165.63	166.53	167.43	168.33	169.22	1400
1500	170.12	171.01	171.90	172.79	173.68	174.56	175.45	176.33	177.21	178.09	1500
1600	178.97	179.84	180.72	181.59	182.46	183.33	184.20	185.06	185.93	186.79	1600
1700	187.65	188.52	189.37	190.23	191.09	191.94	192.80	193.65	194.50	195.35	1700
1800	196.19	197.04	197.89	198.73	199.57	200.41	201.25	202.09	202.93	203.76	1800
1900	204.60	205.43	206.26	207.09	207.92	208.75	209.58	210.40	211.22	212.05	1900
2000	212.87	213.69	214.51	215.32	216.14	216.96	217.77	218.58	219.40	220.21	2000
2100	221.02	221.82	222.63	223.44	224.24	225.05	225.85	226.65	227.45	228.25	2100
2200	229.05	229.84	230.64	231.44	232.23	233.02	233.81	234.61	235.39	236.18	2200
2300	236.97	237.76	238.54	239.33	240.11	240.89	241.67	242.46	243.23	244.01	2300
2400	244.79	245.57	246.34	247.12	247.89	248.66	249.43	250.20	250.97	251.74	2400
2500	252.51	253.28	254.04	254.81	255.57	256.34	257.10	257.86	258.62	259.38	2500
2600	260.14	260.90	261.65	262.41	263.16	263.92	264.67	265.42	266.18	266.93	2600
2700	267.68	268.42	269.17	269.92	270.67	271.41	272.16	272.90	273.64	274.39	2700
2800	275.13	275.87	276.61	277.35	278.09	278.82	279.56	280.30	281.03	281.76	2800
2900	282.50	283.23	283.96	284.69	285.42	286.15	286.88	287.61	288.34	289.06	2900
3000	289.79	290.52	291.24	291.96	292.69	293.41	294.13	294.85	295.57	296.29	3000
3100	297.01	297.73	298.44	299.16	299.87	300.59	301.30	302.02	302.73	303.44	3100
3200	304.15	304.86	305.57	306.28	306.99	307.70	308.41	309.11	309.82	310.52	3200
3300	311.23	311.93	312.64	313.34	314.04	314.74	315.44	316.14	316.84	317.54	3300
3400	318.24	318.93	319.63	320.33	321.02	321.72	322.41	323.11	323.80	324.49	3400
3500	325.18	325.87	326.56	327.25	327.94	328.63	329.32	330.01	330.69	331.38	3500
3600	332.06	332.75	333.43	334.12	334.80	335.48	336.17	336.85	337.53	338.21	3600
3700	338.89	339.57	340.24	340.92	341.60	342.28	342.95	343.63	344.30	344.98	3700
3800	345.65	346.33	347.00	347.67	348.34	349.01	349.68	350.35	351.02	351.69	3800
3900	352.36	353.03	353.70	354.36	355.03	355.69	356.36	357.02	357.69	358.35	3900

Gold versus Platinum
Temperature at intervals of 10 μV *(continued)*

E/μV	0	10	20	30	40	50	60	70	80	90	*E*/μV
						t_{90} / °C					
4000	359.01	359.68	360.34	361.00	361.66	362.32	362.98	363.64	364.30	364.96	4000
4100	365.62	366.27	366.93	367.59	368.24	368.90	369.55	370.21	370.86	371.51	4100
4200	372.17	372.82	373.47	374.12	374.77	375.42	376.07	376.72	377.37	378.02	4200
4300	378.67	379.31	379.96	380.61	381.25	381.90	382.54	383.19	383.83	384.48	4300
4400	385.12	385.76	386.40	387.05	387.69	388.33	388.97	389.61	390.25	390.89	4400
4500	391.52	392.16	392.80	393.44	394.07	394.71	395.35	395.98	396.62	397.25	4500
4600	397.88	398.52	399.15	399.78	400.42	401.05	401.68	402.31	402.94	403.57	4600
4700	404.20	404.83	405.46	406.08	406.71	407.34	407.97	408.59	409.22	409.85	4700
4800	410.47	411.10	411.72	412.34	412.97	413.59	414.21	414.83	415.46	416.08	4800
4900	416.70	417.32	417.94	418.56	419.18	419.80	420.42	421.03	421.65	422.27	4900
5000	422.89	423.50	424.12	424.73	425.35	425.97	426.58	427.19	427.81	428.42	5000
5100	429.03	429.65	430.26	430.87	431.48	432.09	432.70	433.31	433.92	434.53	5100
5200	435.14	435.75	436.36	436.97	437.57	438.18	438.79	439.39	440.00	440.60	5200
5300	441.21	441.81	442.42	443.02	443.63	444.23	444.83	445.44	446.04	446.64	5300
5400	447.24	447.84	448.44	449.04	449.64	450.24	450.84	451.44	452.04	452.64	5400
5500	453.24	453.83	454.43	455.03	455.62	456.22	456.81	457.41	458.00	458.60	5500
5600	459.19	459.79	460.38	460.97	461.57	462.16	462.75	463.34	463.93	464.53	5600
5700	465.12	465.71	466.30	466.89	467.48	468.06	468.65	469.24	469.83	470.42	5700
5800	471.00	471.59	472.18	472.76	473.35	473.93	474.52	475.10	475.69	476.27	5800
5900	476.86	477.44	478.02	478.61	479.19	479.77	480.35	480.94	481.52	482.10	5900
6000	482.68	483.26	483.84	484.42	485.00	485.58	486.15	486.73	487.31	487.89	6000
6100	488.47	489.04	489.62	490.20	490.77	491.35	491.92	492.50	493.07	493.65	6100
6200	494.22	494.80	495.37	495.94	496.51	497.09	497.66	498.23	498.80	499.37	6200
6300	499.95	500.52	501.09	501.66	502.23	502.80	503.37	503.93	504.50	505.07	6300
6400	505.64	506.21	506.77	507.34	507.91	508.47	509.04	509.61	510.17	510.74	6400
6500	511.30	511.87	512.43	513.00	513.56	514.12	514.69	515.25	515.81	516.37	6500
6600	516.94	517.50	518.06	518.62	519.18	519.74	520.30	520.86	521.42	521.98	6600
6700	522.54	523.10	523.66	524.21	524.77	525.33	525.89	526.44	527.00	527.56	6700
6800	528.11	528.67	529.23	529.78	530.34	530.89	531.45	532.00	532.55	533.11	6800
6900	533.66	534.21	534.77	535.32	535.87	536.42	536.98	537.53	538.08	538.63	6900
7000	539.18	539.73	540.28	540.83	541.38	541.93	542.48	543.03	543.57	544.12	7000
7100	544.67	545.22	545.77	546.31	546.86	547.41	547.95	548.50	549.04	549.59	7100
7200	550.14	550.68	551.22	551.77	552.31	552.86	553.40	553.94	554.49	555.03	7200
7300	555.57	556.12	556.66	557.20	557.74	558.28	558.82	559.36	559.90	560.44	7300
7400	560.98	561.52	562.06	562.60	563.14	563.68	564.22	564.76	565.30	565.83	7400
7500	566.37	566.91	567.44	567.98	568.52	569.05	569.59	570.13	570.66	571.20	7500
7600	571.73	572.27	572.80	573.33	573.87	574.40	574.94	575.47	576.00	576.53	7600
7700	577.07	577.60	578.13	578.66	579.19	579.73	580.26	580.79	581.32	581.85	7700
7800	582.38	582.91	583.44	583.97	584.50	585.02	585.55	586.08	586.61	587.14	7800
7900	587.66	588.19	588.72	589.25	589.77	590.30	590.83	591.35	591.88	592.40	7900

Gold versus Platinum
Temperature at intervals of 10 μV *(continued)*

E/μV	0	10	20	30	40	50	60	70	80	90	*E*/μV
						t_{90} / °C					
8000	592.93	593.45	593.98	594.50	595.03	595.55	596.07	596.60	597.12	597.64	8000
8100	598.17	598.69	599.21	599.73	600.26	600.78	601.30	601.82	602.34	602.86	8100
8200	603.38	603.90	604.42	604.94	605.46	605.98	606.50	607.02	607.54	608.06	8200
8300	608.58	609.09	609.61	610.13	610.65	611.16	611.68	612.20	612.71	613.23	8300
8400	613.75	614.26	614.78	615.29	615.81	616.32	616.84	617.35	617.87	618.38	8400
8500	618.89	619.41	619.92	620.43	620.95	621.46	621.97	622.48	623.00	623.51	8500
8600	624.02	624.53	625.04	625.55	626.06	626.57	627.09	627.60	628.11	628.61	8600
8700	629.12	629.63	630.14	630.65	631.16	631.67	632.18	632.68	633.19	633.70	8700
8800	634.21	634.71	635.22	635.73	636.23	636.74	637.25	637.75	638.26	638.76	8800
8900	639.27	639.77	640.28	640.78	641.29	641.79	642.30	642.80	643.30	643.81	8900
9000	644.31	644.81	645.31	645.82	646.32	646.82	647.32	647.83	648.33	648.83	9000
9100	649.33	649.83	650.33	650.83	651.33	651.83	652.33	652.83	653.33	653.83	9100
9200	654.33	654.83	655.33	655.82	656.32	656.82	657.32	657.82	658.31	658.81	9200
9300	659.31	659.81	660.30	660.80	661.29	661.79	662.29	662.78	663.28	663.77	9300
9400	664.27	664.76	665.26	665.75	666.25	666.74	667.23	667.73	668.22	668.71	9400
9500	669.21	669.70	670.19	670.69	671.18	671.67	672.16	672.65	673.15	673.64	9500
9600	674.13	674.62	675.11	675.60	676.09	676.58	677.07	677.56	678.05	678.54	9600
9700	679.03	679.52	680.01	680.50	680.98	681.47	681.96	682.45	682.94	683.42	9700
9800	683.91	684.40	684.89	685.37	685.86	686.35	686.83	687.32	687.80	688.29	9800
9900	688.78	689.26	689.75	690.23	690.72	691.20	691.68	692.17	692.65	693.14	9900
10000	693.62	694.10	694.59	695.07	695.55	696.04	696.52	697.00	697.48	697.97	10000
10100	698.45	698.93	699.41	699.89	700.37	700.85	701.33	701.82	702.30	702.78	10100
10200	703.26	703.74	704.22	704.70	705.17	705.65	706.13	706.61	707.09	707.57	10200
10300	708.05	708.53	709.00	709.48	709.96	710.44	710.91	711.39	711.87	712.34	10300
10400	712.82	713.30	713.77	714.25	714.72	715.20	715.68	716.15	716.63	717.10	10400
10500	717.58	718.05	718.53	719.00	719.47	719.95	720.42	720.89	721.37	721.84	10500
10600	722.31	722.79	723.26	723.73	724.21	724.68	725.15	725.62	726.09	726.56	10600
10700	727.04	727.51	727.98	728.45	728.92	729.39	729.86	730.33	730.80	731.27	10700
10800	731.74	732.21	732.68	733.15	733.62	734.09	734.56	735.02	735.49	735.96	10800
10900	736.43	736.90	737.36	737.83	738.30	738.77	739.23	739.70	740.17	740.63	10900
11000	741.10	741.57	742.03	742.50	742.96	743.43	743.90	744.36	744.83	745.29	11000
11100	745.76	746.22	746.68	747.15	747.61	748.08	748.54	749.00	749.47	749.93	11100
11200	750.39	750.86	751.32	751.78	752.25	752.71	753.17	753.63	754.09	754.56	11200
11300	755.02	755.48	755.94	756.40	756.86	757.32	757.78	758.24	758.70	759.16	11300
11400	759.62	760.08	760.54	761.00	761.46	761.92	762.38	762.84	763.30	763.76	11400
11500	764.22	764.67	765.13	765.59	766.05	766.51	766.96	767.42	767.88	768.34	11500
11600	768.79	769.25	769.71	770.16	770.62	771.08	771.53	771.99	772.44	772.90	11600
11700	773.35	773.81	774.26	774.72	775.17	775.63	776.08	776.54	776.99	777.45	11700
11800	777.90	778.35	778.81	779.26	779.71	780.17	780.62	781.07	781.53	781.98	11800
11900	782.43	782.88	783.33	783.79	784.24	784.69	785.14	785.59	786.04	786.50	11900

Gold versus Platinum
Temperature at intervals of 10 μV *(continued)*

E/μV	0	10	20	30	40	50	60	70	80	90	*E*/μV
						t_{90} / °C					
12000	786.95	787.40	787.85	788.30	788.75	789.20	789.65	790.10	790.55	791.00	12000
12100	791.45	791.90	792.35	792.80	793.24	793.69	794.14	794.59	795.04	795.49	12100
12200	795.93	796.38	796.83	797.28	797.73	798.17	798.62	799.07	799.51	799.96	12200
12300	800.41	800.85	801.30	801.75	802.19	802.64	803.08	803.53	803.97	804.42	12300
12400	804.87	805.31	805.76	806.20	806.64	807.09	807.53	807.98	808.42	808.87	12400
12500	809.31	809.75	810.20	810.64	811.08	811.53	811.97	812.41	812.85	813.30	12500
12600	813.74	814.18	814.62	815.07	815.51	815.95	816.39	816.83	817.27	817.71	12600
12700	818.16	818.60	819.04	819.48	819.92	820.36	820.80	821.24	821.68	822.12	12700
12800	822.56	823.00	823.44	823.88	824.32	824.75	825.19	825.63	826.07	826.51	12800
12900	826.95	827.39	827.82	828.26	828.70	829.14	829.57	830.01	830.45	830.89	12900
13000	831.32	831.76	832.20	832.63	833.07	833.51	833.94	834.38	834.81	835.25	13000
13100	835.69	836.12	836.56	836.99	837.43	837.86	838.30	838.73	839.17	839.60	13100
13200	840.03	840.47	840.90	841.34	841.77	842.20	842.64	843.07	843.50	843.94	13200
13300	844.37	844.80	845.24	845.67	846.10	846.53	846.97	847.40	847.83	848.26	13300
13400	848.69	849.13	849.56	849.99	850.42	850.85	851.28	851.71	852.14	852.57	13400
13500	853.00	853.44	853.87	854.30	854.73	855.16	855.58	856.01	856.44	856.87	13500
13600	857.30	857.73	858.16	858.59	859.02	859.45	859.88	860.30	860.73	861.16	13600
13700	861.59	862.02	862.44	862.87	863.30	863.73	864.15	864.58	865.01	865.43	13700
13800	865.86	866.29	866.71	867.14	867.57	867.99	868.42	868.84	869.27	869.70	13800
13900	870.12	870.55	870.97	871.40	871.82	872.25	872.67	873.10	873.52	873.95	13900
14000	874.37	874.79	875.22	875.64	876.07	876.49	876.91	877.34	877.76	878.18	14000
14100	878.61	879.03	879.45	879.87	880.30	880.72	881.14	881.56	881.99	882.41	14100
14200	882.83	883.25	883.67	884.10	884.52	884.94	885.36	885.78	886.20	886.62	14200
14300	887.04	887.46	887.88	888.30	888.72	889.15	889.57	889.99	890.40	890.82	14300
14400	891.24	891.66	892.08	892.50	892.92	893.34	893.76	894.18	894.60	895.01	14400
14500	895.43	895.85	896.27	896.69	897.11	897.52	897.94	898.36	898.78	899.19	14500
14600	899.61	900.03	900.45	900.86	901.28	901.70	902.11	902.53	902.94	903.36	14600
14700	903.78	904.19	904.61	905.03	905.44	905.86	906.27	906.69	907.10	907.52	14700
14800	907.93	908.35	908.76	909.18	909.59	910.01	910.42	910.83	911.25	911.66	14800
14900	912.08	912.49	912.90	913.32	913.73	914.14	914.56	914.97	915.38	915.80	14900
15000	916.21	916.62	917.03	917.45	917.86	918.27	918.68	919.10	919.51	919.92	15000
15100	920.33	920.74	921.15	921.56	921.98	922.39	922.80	923.21	923.62	924.03	15100
15200	924.44	924.85	925.26	925.67	926.08	926.49	926.90	927.31	927.72	928.13	15200
15300	928.54	928.95	929.36	929.77	930.18	930.59	931.00	931.40	931.81	932.22	15300
15400	932.63	933.04	933.45	933.85	934.26	934.67	935.08	935.49	935.89	936.30	15400
15500	936.71	937.12	937.52	937.93	938.34	938.74	939.15	939.56	939.96	940.37	15500
15600	940.78	941.18	941.59	941.99	942.40	942.81	943.21	943.62	944.02	944.43	15600
15700	944.83	945.24	945.64	946.05	946.45	946.86	947.26	947.67	948.07	948.48	15700
15800	948.88	949.28	949.69	950.09	950.50	950.90	951.30	951.71	952.11	952.51	15800
15900	952.92	953.32	953.72	954.13	954.53	954.93	955.33	955.74	956.14	956.54	15900